

05—320 Replacing timing chain

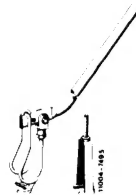
Valve clearance	Cold engine (approx. 20 °C) (68 °F)	Warm engine (60 °C ± 15 °C) (140 °F ± 59 °F)
Intake	0.10 ¹⁾	0.15 ¹⁾
Exhaust	0.25	0.30

¹⁾ 0.05 mm more for consistent outside temperatures below –20 °C (–4.0 °F).

Tightening torques	Nm
Cylinder head cover bolts and capped nuts	5
Chain tensioner ball locating ring	25
Valve adjusting screw	20–40

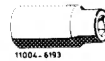
Special tools

Depressor for valve springs



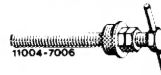
110 589 04 61 00

27 mm wrench socket, 1/2" square,
to turn engine



001 589 65 09 00

Rigid chain tensioner



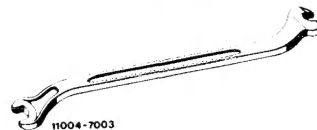
110 589 03 31 00

Holder for chain tensioner



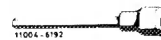
110 589 02 31 00

Valve adjusting wrench 17 mm



110 589 01 01 00

Wrench socket 10 mm,
1/2" square, 140 mm long



000 589 05 07 00

Note

For repairs a repair chain with plug link, part no. 000 997 69 94 is available.

If only an endless timing chain with 130 links is available, chain can be split by grinding into **both pins of a link** and using a plug link for assembly. (Do not apply pressure, since this would result in lateral deflection). Use only one plug link, part no. 000 997 05 98 with two lock washers.

Check sprockets for scoring and pitting.



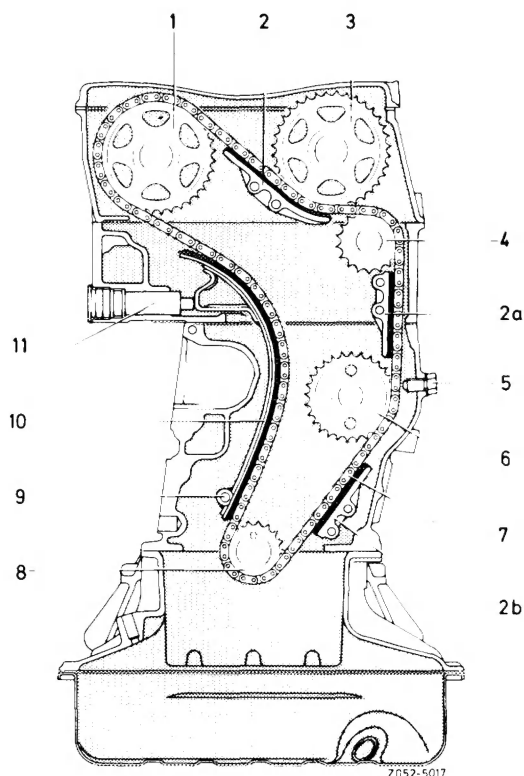
105-9259

Replacing

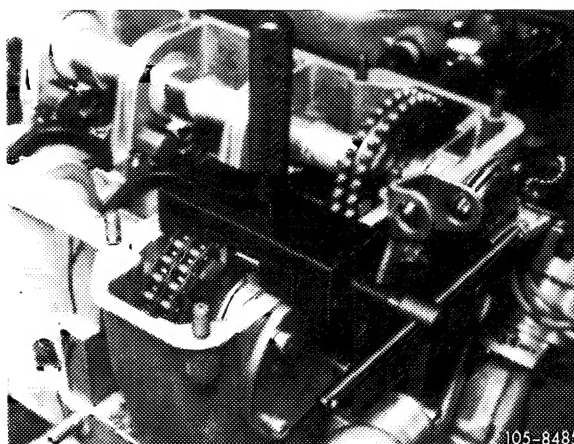
- 1 Remove spark plugs and take off cylinder head cover.
- 2 Remove rocker arm of righthand camshaft (exhaust) (05-230), so that camshaft will not rotate in jerks.
- 3 Remove chain tensioner (05-310). Install rigid chain tensioner and tighten by hand.

Chain drive

- | | |
|-----------------------------|-------------------------------|
| 1 Exhaust camshaft sprocket | 7 Timing chain |
| 2-2b Sliding rail | 8 Camshaft sprocket |
| 3 Intake camshaft sprocket | 9 Bearing pin tensioning rail |
| 4 Guide wheel | 10 Tensioning rail |
| 5 Lock screw | 11 Hydraulic chain tensioner |
| 6 Intermediate gear | |

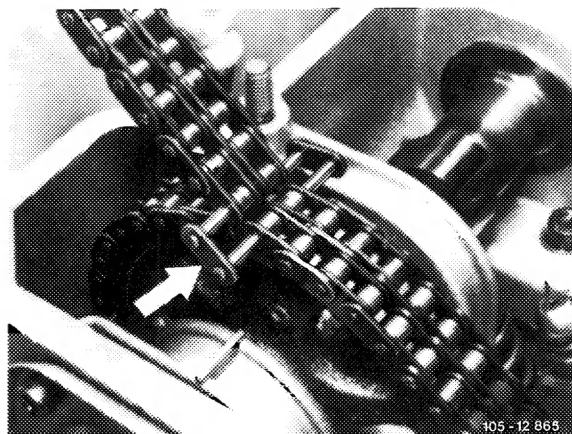


- 4 Cover chain housing with a clean cloth and break timing chain with chain separating device or grind off both chain pins of **one link**.



105-8485

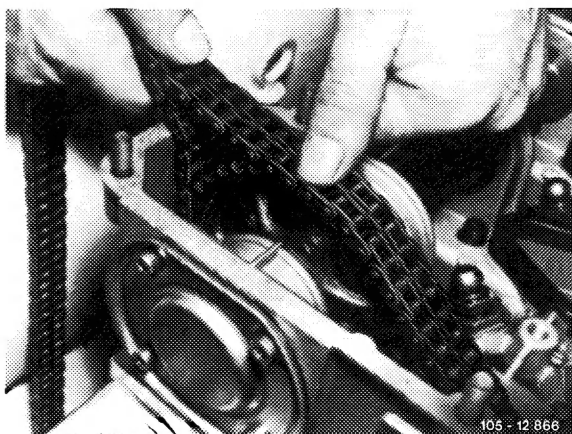
5 Connect new timing chain to old timing chain with one link, whereby the broken link is pressed out.



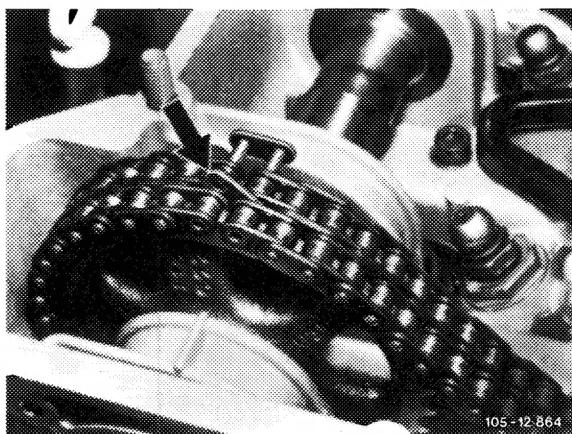
6 Turn crankshaft in engine's direction of rotation slowly with a 27 mm socket wrench and a ratchet, and at the same time lift the old chain until the link is at the uppermost point of the right camshaft sprocket.

Attention!

While turning the timing chain must be in constant engagement on both camshaft sprockets.



7 Detach old timing chain and connect ends of new timing chain with one link. Install center bar (arrow) and outer bar. Press on lock washers.



8 Turn crankshaft and check adjustment marks with engine in TDC position.

9 Disassemble chain tensioner, move to assembly position and install (05-310).

10 Install rocker arms (05-230).

11 Adjust valve clearance of exhaust camshaft (05-210).

